**Algebra 1 SYLLABUS**   
September 2-December 19, 2008



[www.clackamasmiddlecollege.org](http://www.clackamasmiddlecollege.org)

**Instructor Information**

**Instructors**: Ameena Amdahl-Mason and Dan Jenkins

**Telephone**: 503-518-5925

**Email**: [amdahl-masona@nclack.k12.or.us](mailto:amdahl-masona@nclack.k12.or.us), [jenkinsd@nclack.k12.or.us](mailto:jenkinsd@nclack.k12.or.us)

**Office Hours**: 7:45-9:15am/2:45-3:45pm or by arrangement

**CLASS Information:**

**Course Description**:

This course is one that focuses on Algebra fundamentals. Topics include operations in integers, first-degree equations and inequalities, operations on algebraic expressions, factoring techniques, and an introduction to rational expression. This course will foster an understanding of signed numbers, tables and graphs, equations, mathematical modeling, function sense and linear functions, systems of two linear equations, and applications of these topics.

### Credits: 0.5 Credits per term

**Class Schedule:**Monday-Friday, 9:15-10:10am, (until 10:25 on Tuesday/Thursday)

**Location**: CMC main campus; art classroom

**Pre-requisites:** N/A

**Textbook**: *Elementary and Intermediate Algebra* (3rd ed.) by Baratto and Bergman

**Resources**:

Students have access to resources posted on the CMC website under the instructor’s page. Included with the resources, students will also find:

* Current weekly grades posted
* Current assignments posted
* Instructions to each assignments
* Other materials to be included as the course progresses

**Supplies**: Students are to bring a writing utensil every day along with a binder, notebook paper, and completed work from the previous day, handouts given out in class, and a calculator.

**Specific Course Topics/Sequence:**

* Review
* Pre-algebra  
  Fractions   
  Real Numbers   
  Adding and Subtracting Real Numbers   
  Multiplying and Dividing Real Numbers   
  Exponents and Order of Operation
* Transition to Algebra   
  Introduction to variables

Algebraic expressions

Translating English to Algebra

Evaluating Algebraic Expressions   
Adding and Subtracting Algebraic Expressions   
Sets

* Equations and Inequalities   
  Solving Equations by Adding and Subtracting   
  Solving Equations by Multiplying and Dividing   
  Combining the Rules to Solve Equations   
  Literal Equations and Their Applications   
  Solving Linear Inequalities Using Addition   
  Solving Linear Inequalities Using Multiplication   
  Solving Absolute Value Equations   
  Solving Absolute Value Inequalities
* Graphs and Linear Equations   
  Solutions of Equations in Two Variables   
  The Cartesian Coordinate System   
  The Graph of a Linear Equation   
  The Slope of a Line   
  Forms of Linear Equations   
  Graphing Linear Inequalities in Two Variables
* Exponents and Polynomials   
  Positive Integer Exponents   
  Zero and Negative Exponents and Scientific Notation   
  Introduction to Polynomials   
  Addition and Subtraction of Polynomials   
  Multiplication of Polynomials and Special Products   
  Division of Polynomials

### 

**Common Curriculum Goals and standards**: You have the opportunity to learn the following mathematics goals and standards in this course:

**Calculations and Estimations**

1. Numbers: Understand numbers, ways of representing numbers, relationships among numbers, and number systems.
   1. *Compare real numbers.*
   2. *Order and compare numbers expressed in scientific notation to each other and to other forms of real numbers*
   3. *Recognize that the set of real numbers contains the set of irrational numbers and the set of rational numbers and know the difference between them.*
   4. *Locate real numbers on a number line (including approximations of irrational numbers).*
   5. *Apply equivalent forms of real numbers to solve problems.*
2. Computation and Estimation: Compute fluently and make reasonable estimates.
   1. Compute with real numbers, including absolute value and numbers expressed in scientific notation.
   2. Compute with integer exponents and whole number roots.
   3. Mentally multiply and divide by powers of 10 to estimate results of computations involving numbers expressed in scientific notation.
   4. Develop and use strategies to estimate the results of real number computations, determine the amount of error, and judge the reasonableness of results.
   5. Estimate the results of computations with integer powers and roots of real numbers.
3. Operations and Properties: Understand meanings of operations and how they relate to one another.
   1. *Apply the associative, commutative, and distributive properties to simplify computations with real numbers.*
   2. *Use properties of numbers to demonstrate whether assertions are true or false.*

**Statistics and Probability**

1. Collect and Display Data: Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.
   1. *Determine appropriate designs for simulations (surveys, observational studies, and experiments) and modeling to study a problem and construct empirical probability distributions to represent results.*
   2. *Use matrices, histograms, scatter plots, stem-and-leaf plots, and box-and whisker-plots to interpret data.*
2. Data Analysis and Predictions: Develop and evaluate inferences and predictions that are based on data.
3. *Make inferences and predictions from data in histograms, scatter plots, and parallel box plots.*
4. *Make predictions about populations based on reported sample statistics.*
5. *Understand that inferences about a population drawn from a sample involve uncertainty and that the role of statistics is to measure that uncertainty.*

**Algebraic Relationships**

1. Patterns and Functions: Understand patterns, relations, and functions.
   1. *Represent and generalize sequences resulting from linear, quadratic, and exponential relationships using recursive or explicit formulas tables of values and graphs. [linear only]*
   2. *Produce a valid conjecture using inductive reasoning by generalizing from a pattern of observations.*
   3. *Evaluate and make a table for two-variable formulas and match a graph or table of values to its formula.*
   4. *Identify independent and dependent variables and determine the domain and range of a function in a problem situation.*
2. Algebraic Relationships: Represent and analyze mathematical situations and structures using algebraic symbols
   1. Recognize and generate equivalent forms for algebraic expressions, including combining like terms and expanding binomials.
   2. *Evaluate algebraic expressions and formulas by substituting real numbers.*
3. Modeling: Use mathematical models to represent and understand quantitative relationships.
   1. *Model situations, make predictions and inferences, and solve problems using linear, quadratic, and exponential functions. [linear only]*
4. Change: Analyze change in various contexts.
   1. *Approximate and interpret rates of change in graphical and numeric data.*

**Measurement**

1. Units and Tools: Understand measurable attributes of objects and the units, systems and processes of measurement.
   1. *Determine the appropriate units, scales, and tools for problem situations involving measurement.*
   2. *Solve problems involving unit conversions (e.g., mile per hour to feet per second) given the unit equivalencies.*
   3. *Determine the precision of a given measuring tool (e.g., 1 degree for a standard protractor).*

**Geometry**

1. Coordinate Geometry: Specify locations and describe spatial relationships using coordinate geometry and other representational systems.
   1. *Determine the relative placement (e.g., intersecting, parallel, perpendicular) of two lines on a coordinate plane given the algebraic equations representing them.*
   2. *Calculate slope, distance and midpoint between points with an emphasis on practical applications (use coordinate formulas).*

**Mathematical Problem Solving**

1. Conceptual Understanding: Select, apply, and translate among mathematical representations to solve problems.
   1. *Interpret the concepts of a problem-solving task and translate them into mathematics.*
2. Processes and Strategies: Apply and adapt a variety of appropriate strategies to solve problems.
   1. *Choose strategies that can work and then carry out the strategies chosen.*
3. Verification: Monitor and reflect on the process of mathematical problem solving.
   1. *Produce identifiable evidence of a second look at the concepts/strategies/calculations to defend a solution.*
4. Communication: Communicate mathematical thinking coherently and clearly. Use the language of mathematics to express mathematical ideas precisely.
   1. *Use pictures, symbols, and/or vocabulary to convey the path to the identified solution.*
5. Accuracy: Accurately solve problems that arise in mathematics and other contexts.
   1. *Accurately solve problems using mathematics.*

**Reading/Writing/Speaking skills**: In addition to specific skills mentioned above, CMC has identified core skills that are transferable and go beyond the context of a specific course. This class addresses the following core skills of reading/writing and speaking skills:

**Reading**

1. Concepts of Print: Analyze words, recognize words, and learn to read grade-level text fluently across the subject areas.
2. Phonemic Awareness: Analyze words, recognize words, and learn to read grade-level text fluently across the subject areas.
3. Decoding and Word Recognition: Analyze words, recognize words, and learn to read grade-level text fluently across the subject areas.
4. Listen to and Read Informational and Narrative Text: Listen to, read, and understand a wide variety of informational and narrative text across the subject areas at school and on own, applying comprehension strategies as needed.
5. Vocabulary: Increase word knowledge through systematic vocabulary development; determine the meaning of new words by applying knowledge of word origins, word relationships, and context clues; verify the meaning of new words; and use those new words accurately across the subject areas.
6. Read to Perform a Task: Find, understand, and use specific information in a variety of texts across the subject areas to perform a task.
7. Informational Text: Demonstrate General Understanding: Demonstrate general understanding of grade-level informational text across the subject areas.
8. Informational Text: Develop an Interpretation: Develop an interpretation of grade-level informational text across the subject areas.
9. Informational Text: Examine Content and Structure: Examine content and structure of grade-level informational text across the subject areas.

**Writing**

1. Planning, Evaluation, and Revision: Pre-write, draft, revise, edit, and publish across the subject areas.
2. Writing:  Communicate supported ideas across the subject areas, including relevant examples, facts, anecdotes, and details appropriate to audience and purpose that engage reader interest ; organize information in clear sequence, making connections and transitions among ideas, sentences, and paragraphs ; and use precise words and fluent sentence structures that support meaning.
3. Conventions: Spelling: Demonstrate knowledge of spelling, grammar, punctuation, capitalization, and penmanship across the subject areas.
4. Conventions: Grammar: Demonstrate knowledge of spelling, grammar, punctuation, capitalization, and penmanship across the subject areas.
5. Conventions: Punctuation: Demonstrate knowledge of spelling, grammar, punctuation, capitalization, and penmanship across the subject areas
6. Conventions: Capitalization: Demonstrate knowledge of spelling, grammar, punctuation, capitalization, and penmanship across the subject areas.
7. Conventions: Handwriting: Demonstrate knowledge of spelling, grammar, punctuation, capitalization, and penmanship across the subject areas.
8. Writing Modes: Write narrative, expository, and persuasive texts, using a variety of written forms—including journals, essays, short stories, poems, research reports, research papers, business and technical writing—to express ideas appropriate to audience and purpose across the subject areas.

**Speaking and Listening**

1. Speaking: Communicate supported ideas across the subject areas using oral, visual, and multi-media forms in ways appropriate to topic, context, audience, and purpose ; organize oral, visual, and multi-media presentations in clear sequence, making connections and transitions among ideas and elements ; use language appropriate to topic, context, audience, and purpose ; and demonstrate control of eye contact, speaking rate, volume, enunciation, inflection, gestures, and other non-verbal techniques.
2. Listening: Listen critically and respond appropriately across the subject areas.
3. Analysis: Evaluate the significance and accuracy of information and ideas presented in oral, visual, and multi-media communications across the subject areas.

**RESPONSIBILITIES and Policies:**

**Student Responsibilities:** As a student of CMC, I expect you to adhere to the policies of the school, as outlined by the Student Handbook (located on the website). You are responsible for the assignments in this class and to communicate any questions, comments or concerns you have to me. Acceptable means of communication include an appointment, e-mail, voicemail or through online discussion forums/blogs. Use of correct grammar and punctuation is required in all written communications.

Plagiarism, cheating and collusion are prohibited at CMC. Students who fail to observe these standards are subject to disciplinary action. Please refer to the CMC Student Handbook for further definitions and consequences of these behaviors, available at: [www.clackamasmiddlecollege.org](http://www.clackamasmiddlecollege.org)

**Attendance:** Attending class daily will impact a student’s opportunity to learn in a positive manner and should result in mastery of skills, benchmarks and standards mentioned above.

**Class participation:** Class participation will result in a greater understanding of the subject matter and will help in skill development. This includes classroom or online discussions, group work, project or other participation requirements that impact student’s opportunity to learn.

**Use of Electronic Devices:** Cell phones, iPods and other relevant or irrelevant electronic devices are not to interfere with the learning environment unless these electronic devices are being used for a class assignment. The instructor reserves the right to take any devices that pose a problem. If a device is taken, then it will be returned in a timely fashion with a discussion about classroom expectations. If problem persists then disciplinary action may be taken.

**Other Policies:** Refer to the CMC Student Handbook

**Instructor Responsibilities:** As your instructor, I commit to communicating openly and frequently with you about this class. I will maintain a professional, safe learning environment adhering to the policies of CMC. You can expect a reply to communication, be it via e-mail, voicemail or in person, within 24-48 business hours.

**Syllabus Changes:** As your instructor, I retain the right to make changes based on the timeline of the class, feedback from learners and/or logistical issues and will inform you as soon as a change is made.

**Grading Policy:**

Grades are based on the mastery of the following curricular goals.

**Calculations and Estimations**

1. Numbers: Understand numbers, ways of representing numbers, relationships among numbers, and number systems.
2. Computation and Estimation: Compute fluently and make reasonable estimates.
3. Operations and Properties: Understand meanings of operations and how they relate to one another.

**Statistics and Probability**

1. Collect and Display Data: Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.
2. Data Analysis and Predictions: Develop and evaluate inferences and predictions that are based on data.

**Algebraic Relationships**

1. Patterns and Functions: Understand patterns, relations, and functions.
2. Algebraic Relationships: Represent and analyze mathematical situations and structures using algebraic symbols
3. Modeling: Use mathematical models to represent and understand quantitative relationships.
4. Change: Analyze change in various contexts.

**Measurement**

1. Units and Tools: Understand measurable attributes of objects and the units, systems and processes of measurement.

**Geometry**

1. Coordinate Geometry: Specify locations and describe spatial relationships using coordinate geometry and other representational systems.

**Grading Scale:**

|  |  |
| --- | --- |
| **Points Attained** | **Grade** |
| 90-100 | A |
| 80-89 | B |
| 70-79 | C |
| 60-69 | D |
| 50-59 | F |